

U.S. OFFICE OF PERSONNEL MANAGEMENT

CLASSIFICATION & QUALIFICATIONS GENERAL SCHEDULE QUALIFICATION STANDARDS

General Physical Science Series, 1301

Individual Occupational Requirements**Basic Requirements:**

1. Degree: physical science, engineering, or mathematics that included 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials, and electronics.

or
2. Combination of education and experience -- education equivalent to one of the majors shown in A above that included at least 24 semester hours in physical science and/or related engineering science, plus appropriate experience or additional education.

For Department of the Interior Positions With Pilot Duties

Applicants must:

- Possess a current FAA Commercial Airman Certificate with ratings appropriate for the duties performed;
- Possess an instrument rating;
- Have completed a minimum of 500 hours of flight time as Pilot-in-Command and 25 hours of flight time as Pilot-in-Command at night; and
- Possess a current Class II Medical Certificate.

Related Information**Associated Group Standard**

Use the [Group Coverage Qualification Standard for Professional and Scientific Positions](#) for this series in conjunction with the Individual Occupational Requirements described below.

[GS-2101 Transportation Specialist*](#)

[GS-2110 Transportation Industry Analysis*](#)

[GS-2123 Motor Carrier Safety*](#)

[GS-2125 Highway Safety*](#)

[GS-2130 Traffic Management*](#)

[GS-2150 Transportation Operations*](#)

[GS-2161 Marine Cargo*](#)

[Back to Top](#)

Professional and Scientific Positions

This qualification standard covers positions in the General Schedule that involve the performance of two-grade interval professional and scientific work. The specific requirements for entry into each occupation covered by this standard are described in individual occupational requirements. Subsection [E.4.\(g\)](#) of the "Policies and Instructions" provides guidance on interpreting minimum educational requirements.

A list of the occupational series covered by this standard is provided [below](#).

Basic requirements for all grades

Applicants who meet the basic requirements described in the individual occupational requirements are fully qualified for the specified entry grade (generally grade GS-5). Applicants who wish to qualify for positions at higher grade levels (generally grade GS-7 and above) must also meet the requirements shown in the [table](#) on page IV-A-22, in addition to meeting the basic requirements.

The individual occupational requirements typically provide at least two methods for applicants to meet the basic requirements of the occupations covered by this standard:

1. Successful completion of a full 4-year course of study in an accredited college or university leading to a bachelor's or higher degree that included a major field of study or specific course requirements generally as stated in paragraph A in the individual occupational requirements.

Where specific course requirements are not indicated in paragraph A, the number of semester hours required to constitute a major field of study is the amount specified by the college or university attended. If this number cannot be obtained, 24 semester hours will be considered as equivalent to a major field of study. The nature and quality of this required course work must have been such that it would serve as a prerequisite for more advanced study in the field or subject-matter area. Related course work generally refers to courses that may be accepted as part of the program major.

2. Appropriate combination of education and experience that is typically specified in paragraph B of the individual occupational requirements. The "paragraph B" method generally requires that an applicant possess a core of educational credit, such as described in paragraph A above, plus additional education and/or experience. The method of determining the number of semester hours required to constitute a major field of study is the same as described in paragraph A.

The quality of the combination of education and experience must be sufficient to demonstrate that the applicant possesses the knowledge, skills, and abilities required to perform work in the occupation, and is comparable to that normally acquired through the successful completion of a full 4-year course of study with a major in the appropriate field. In addition to courses in the major and related fields, a typical college degree would have included courses that involved analysis, writing, critical thinking, research, etc. These courses would have provided an applicant with skills and abilities sufficient to perform progressively more responsible work in the occupation. Therefore, creditable experience should have demonstrated similarly appropriate skills or abilities needed to perform the work of the occupation.

The individual occupational requirements for some series make no provision for combining experience and education. Therefore, they do *not* include paragraph B provisions.

For a small number of occupations or positions covered by this standard, applicants may possess certain kinds of experience *in lieu* of education. In such cases, applicants may meet minimum qualification requirements through experience equivalent to a 4-year degree. These situations are generally described in paragraph C of the individual occupational requirements.

Applicants whose experience is used to meet the basic requirements through a paragraph B or C provision may qualify for grades above the entry level if that experience includes 1 year of specialized experience. In such cases, the specialized experience would have to be evaluated to determine if it is at the appropriate grade level in the normal line of progression.

Experience and education requirements for GS-7 and above

In addition to meeting the basic entry qualification requirements, applicants must have specialized experience and/or directly related education in the amounts shown in the table below.

GRADE/ POSITIONS	EDUCATION	SPECIALIZED EXPERIENCE
GS-7	1 year of graduate-level education <i>or</i> superior academic achievement	1 year equivalent to at least GS-5
GS-9	2 years of progressively higher level graduate education leading to a master's degree <i>or</i> master's or equivalent graduate degree	1 year equivalent to at least GS-7
GS-11	3 years of progressively higher level graduate education leading to a Ph.D. degree <i>or</i> Ph.D. or equivalent doctoral degree	1 year equivalent to at least GS-9
GS-12 and above		1 year equivalent to at least next lower grade level

Research Positions

GRADE/ POSITIONS	EDUCATION	SPECIALIZED EXPERIENCE
GS-11 research positions	Master's or equivalent graduate degree	1 year equivalent to at least GS-9
GS-12 research positions	Ph.D. or equivalent doctoral degree	1 year equivalent to at least GS-11
GS-13 and above research positions		1 year equivalent to at least next lower grade level

NOTE: Education and experience may be combined for all grade levels for which both education and experience are acceptable.

While the levels of experience shown for most positions covered by this standard follow the grade level progression pattern outlined in the table, users of the standard should refer to [E.3.\(p\)](#) in the "Policies and Instructions" for guidance on crediting experience for positions with different lines of progression.

Combining Education and Experience: When combining education with experience, first determine the applicant's total qualifying education as a percentage of the education required for the grade level; then determine the applicant's experience as a percentage of the experience required for the grade level; finally, add the two percentages. The total percentage must equal at least 100 percent to qualify an applicant for that grade level. For example, an applicant for a GS-184, Sociology, position has successfully completed 60 undergraduate semester hours, including 24 semester hours in sociology, and, in addition, has 2 full-time years of appropriate experience that demonstrates that the applicant possesses the necessary analytical and communication skills. The applicant would qualify for GS-5, since the 60 semester hours (the equivalent of 2 years of undergraduate education, or 50 percent of the total requirement) were supplemented by 2 additional years of appropriate experience that provided the remaining 50 percent of the total required education and experience.

Specialized Experience: Experience that equipped the applicant with the particular knowledge, skills, and abilities to perform successfully the duties of the position, and that is typically in or related to the work of the position to be filled. To be creditable, specialized experience must have been equivalent to at least the next lower grade level in the normal line of progression for the occupation in the organization.

Superior Academic Achievement: The superior academic achievement provision is applicable to all occupations covered by this standard. See the "General Policies and Instructions" for specific guidance on applying the superior academic achievement provision.

Graduate Education: Completion of graduate level education in the amounts shown in the table, in addition to meeting the basic requirements, is qualifying for positions at grades GS-7 through GS-11, and GS-12 research positions if it provided the knowledge, skills, and abilities necessary to do the work. One year of full-time graduate education is considered to be the number of credit hours that the school attended has determined to represent 1 year of full-time study. If that number cannot be obtained from the school, 18 semester hours should be considered an academic year of graduate study. Part-time graduate education is creditable in accordance with its relationship to a year of full-time study at the school attended.

Research Positions: Positions that primarily involve scientific inquiry or investigation, or research-type exploratory development of a creative or advanced scientific nature, where the knowledge required to perform the work successfully is typically and primarily acquired through graduate study (master's or equivalent degree for GS-11, Ph.D. or equivalent for GS-12). The work is such that the academic preparation will equip the applicant to perform the full range of professional work of the position after a short orientation period.

1. Qualification on the basis of education--Applicants for such research positions can be considered qualified for GS-11 if they possess an appropriate master's or equivalent graduate degree, and qualified for GS-12 if they possess a Ph.D. or equivalent doctoral degree.
2. Qualification on the basis of experience--Applicants who furnish positive evidence that they have performed highly creative or outstanding research that has led or can lead to major advances in a specific area of research, to a major advance in the discipline or field of science involved, or to major advances in science in general, can be rated under this provision for highly demanding research positions requiring similar abilities. Under these circumstances, applicants can be rated eligible for the next higher grade level above that for which they would normally be rated, provided they have not been rated eligible at this higher grade on the basis of meeting the graduate study requirements described in paragraph 1 above. To receive this rating, the work must have been creative in the sense that it developed a basic principle, product, concept, method, approach, or technique, or provided a body of basic information that opened the way for a major advance in the discipline or field of science involved, or to advances in science in general, by providing a method of solving other problems, opening areas of research, or providing the means of exploiting the application of science in a major area.

Applicants cannot receive an "extra" grade for education, and an additional "extra" grade for appropriate experience.

Combination of Graduate Education and Professional Experience: Combinations of successfully completed graduate level education and specialized experience may be used to meet total experience requirements. Only graduate level education in excess of the amount required for the next lower grade level may be combined with experience. For example, an applicant with 6 months of appropriate experience equivalent to GS-7 (50 percent of the experience requirement for GS-9) and 27 semester hours of appropriate graduate education (50 percent of the education requirement for GS-9, in excess of that required for GS-7) would be qualified for a GS-9 position (assuming that there is no evidence that the attended college or university requires more than 18 semester hours as equivalent to a year of graduate study).

Using selective factors for positions covered by this standard

There are a variety of situations where agencies would be warranted in limiting consideration to applicants who possess the particular qualifications required to perform the work of positions covered by this standard. For example, an agency may require specific kinds of training appropriate for filling positions concerned with scientific research and development activities, or may require specific educational courses or combinations of courses (where the individual occupational requirements permit applicants to qualify based on several combinations of educational course work) to meet other specialized agency requirements. An agency filling an international economist position may require knowledge of international economics. In this case, since applicants can qualify on the basis of education, the agency may require certain types of educational courses. Similarly, in some cases, consideration may be limited only to those applicants who possess an appropriate license, registration, or certification, if possession of such is determined to be necessary for carrying out the responsibilities of a position and/or required by statute.

Occupational Coverage

A list of the occupational series covered by this qualification standard is provided below. All occupational series covered by this standard have individual occupational requirements.